

6.

Notes on the Display of the
Three-wattled Bell-bird (*Procnias tricarunculata*).

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(Plate I).

When Charles Cordier, Staff Collector for the New York Zoological Society, arrived at the Zoological Park from Costa Rica on August 31, 1947, he brought with him three specimens of the Three-wattled Bell-bird (*Procnias tricarunculata*). It is believed that these were the first representatives of the species to be seen alive outside their native habitat, which includes the mountains of Nicaragua, Costa Rica and Panama.

The trio consisted of an adult male with chestnut body and white head and throat, an immature male in mottled green plumage, its back slightly blotched with chestnut, and an adult female. The adult male, unfortunately, escaped soon after arrival but the younger bird remained available for observation. In writing of this particular bird¹, Cordier states that he was calling regularly at the time of his capture in mid-May, 1947. After being placed in a flight cage at the Zoological Park in September, 1947, he quickly resumed his demonstrations. At this time, although calling was frequent, there was no noticeable enlargement of the wattles, the three appendages remaining black and shrunken. The nasal wattle was about $\frac{3}{4}$ " in total length, the basal $\frac{1}{4}$ " being approximately $\frac{1}{8}$ " in diameter, the distal $\frac{1}{2}$ " about $\frac{1}{16}$ " in diameter. When in this condition, the slightly thickened basal $\frac{1}{4}$ " was faintly erectile. The lateral wattles were estimated to be 1" in length and $\frac{1}{16}$ " in diameter, each with two or three sharply angular kinks.

In January, 1948, it was noted that there was some extension of the wattles when the bird was calling. This enlargement increased gradually, reaching a maximum about May 1, when the following notes were made. Certain plumage changes had occurred by this time, the chocolate of the upper parts having increased, the head having become thickly mottled with white and the throat almost entirely white, with a strong wash of yellow.

The bird begins its display by bringing its body into a stiffly horizontal position, held high on the legs, much as in *P. nudicollis*. The mouth is opened widely, until the lower

mandible approximates a right angle to the upper. The wattles remain shrunken. The body is then pumped rapidly up and down for about five seconds. This movement then ceases and with the body, legs and wings rigid, a violent convulsion of the throat and neck is followed by the sharp, metallic "bell" sound. Frequently, but not invariably, this initial effort is followed by a series of five or six lesser ones, in regularly decreasing volume.

Pumping and calling may alternate continuously for periods of an hour or even longer. As calling continues, the wattles gradually enlarge until, after several efforts, the maximum is reached. At this point, the following dimensions were estimated: nasal, length $3\frac{1}{4}$ ", diameter, $\frac{1}{4}$ "; laterals, 3", diameter, $\frac{3}{16}$ ". All wattles are completely sessile at the maximum and move from side to side as though weighted, when the convulsive calls are given.

At this stage, the display is frequently preceded by head shaking and experimental opening of the mouth. This seems to be related to the position of the heavy nasal wattle, which causes the bird obvious annoyance. It may fall at either side and frequently drops within the widely opened mouth, which sometimes closes upon it.

While several efforts are required before the wattles reach their maximum, any sudden disturbance of the bird will cause them to shrink almost instantaneously. If activity is promptly renewed, enlargement takes place visibly, so that the maximum is regained within a few seconds.

During the period under consideration, the female has continued to occupy the same cage. Her general reaction seems to be one of mild alarm, although on several occasions she appeared to be attracted by the dangling wattles. At least once, she was seen to reach out as though to peck at them. This action caused the male to move quickly, with immediate retraction of the wattles.

Often, following several displays, the male darts rapidly at the female, which flies in alarm. No attempt at copulation has been noted.

¹ *Animal Kingdom*, November-December, 1947, pp. 175-6.

EXPLANATION OF THE PLATE.

PLATE I.

Photographs by Sam Dunton, Staff Photographer, New York Zoological Park.

- Fig. 1. *Procnias tricarunculata*, ♂, sub-adult.
Showing wattles in normal resting condition.
- Fig. 2. *Procnias tricarunculata*, ♂, sub-adult.
Calling position, wattles somewhat less than fully extended.